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## THE STRUCTURE OF ANOMALOUSLY WIDE ATMOSPHERIC SHOWERS OF COSMIC RADIATION

Acad D. V. Skobel'tsyn, G. T. Zatsepin Phys Inst imeni P. N. Lebedev Acad Sci USSR Submitted 21 Jun 1950

The results of observations which established the existence of anomalously wide atmospheric showers were published in 1947 (D. V. Skobel'tsyn, G. T. Zatsepin, and V. V. Miller, Phys. Rev., 71, 315, 1947; G. T. Zatespin and V. V. Miller, ZhETF, 17, 939, 1947).

Coincidences in a counter system recording these showers at 3860 m can be observed at distances up to 1,000 m between counters. Repeated experiments fully confirmed, with good statistical accuracy, the data obtained on the number of such showers observed per unit time. From the interpretation which followed (D. V. Skobel'tsyn, DAN, Vol LXVII, 45, 1949; ibid., Vol LXVII, 255, 1949), it was considered proven that these showers are a new phenomenon, not covered by the classical cascade theory of showers.

These results, however, were incorrectly interpreted by some authors (G. Cocconi, Phys. Rev., 72, 350, 1948), who drew the exactly opposite conclusion that our observations somehow gave new confirmation of the cascade theory of showers (in the region of very high energies, i.e., 1017-1018 eV).

Because of this and in view of the major importance of this problem, this paper details a method which solves decisively the problem of whether the data on the structure of these showers can be reconciled with the cascade theory. The experiments based on this method are described in the present issue of Dokladi Akademii Nauk in a paper by G. T. Zatsepin, I. L. Rozental', V. P. Zakharov, N. G. Khrebet, and G. V. Khristiansen. The article referred to is not to be found in this issue.

The discussion which follows establishes that anomalously wide showers are a new phenomenon essentially different from phenomena described by the ordinary cascade theory.

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